

## 1975 ARTICLE INDEX

A subject listing of articles published in MODERN MACHINE SHOP  
during the past year.

### ABRASIVE BELT MACHINING

Abrasive Belts Polish Off Cast-Iron Machining Headache .....	Aug.	80
Abrasive Belts Deburr And Finish Precision Telephone Stampings .....	Dec.	90

### ADHESIVES, FASTENING

Basic Principles Of Good Riveting .....	Dec.	72
-----------------------------------------	------	----

### ALLOYS

Mold Steel Meets Rugged Requirements .....	May	114
--------------------------------------------	-----	-----

### BORING

NC Places Mold Maker In Better Market Position .....	Jan.	74
NC "Imitation" Pays Off .....	Mar.	117
Complete Systems Tooling For Productivity .....	Apr.	88
The Exception To Presetting .....	Nov.	92
Small Shop - Big NC .....	Nov.	108
NC Machining Center Saves Time And Money .....	Nov.	114
Wotan Rapid America To Be Built In-The U. S. ....	Nov.	126

### BROACHING

Broaching Performed During NC Turret Lathe's Automatic Cycle .....	Jan.	86
Short-Run Broaching Is Job Shop's Winner .....	Mar.	90
Broach Holder And Stripper Pad .....	Apr.	111
Broaching Speeds Production Of Disposable Surgical Instruments .....	June	116
Precision Broaching For Producing Critical Typewriter Parts .....	Sept.	105

### BURNISHING & POLISHING

Russians Discover Benefits Of Roller Burnishing .....	Sept.	115
-------------------------------------------------------	-------	-----

### CARBIDE TOOLING

KC75 Inserts Used For 22 Cubic Inches-Per-Minute Removal .....	Feb.	102
The New ANSI Standard - Precision Holders For Indexable Inserts .....	Mar.	83
New Geometry On Carbide Inserts For Greater Productivity .....	June	124
High Speed Electric Spindles Used For Grinding Carbide Cutting Tools .....	July	81
Solutions To Screw-Machine Problems .....	Sept.	87
How To Get Uniform Chip Control .....	Oct.	106
Finding Your Best Machining Conditions - Pt. 2 of a 3 Pt. Series .....	Dec.	82

### CLAMPING & HOLDING

Power Chucking Grips NC Turning Profits .....	Feb.	84
Automated Clamping Made Easy .....	Feb.	108
Short-Run Broaching Is Job Shop's Winner .....	Mar.	90
Six Basic Rules For Reducing Abrasive Cutoff Costs .....	Mar.	98
Switch Relocation Saves Material .....	Apr.	112
Threaded-Body Rams Are Key Components In Hydraulic Collet .....	July	78
Gripping Attachment Increases Production 100 Percent .....	Sept.	104
Holding Without Distortion For NC .....	Oct.	97

### CUTTING FLUIDS

Keys To Better Deep-Hole Drilling - Pt. 1 of a 2 Pt. Series .....	Jan.	78
Keys To Better Deep-Hole Drilling - Pt. 2 of a 2 Pt. Series .....	Feb.	94
Cutting Solution Meets Space Age Machining Demands .....	Feb.	100
Low-Temperature Cleaners Cut Fuel Costs .....	Mar.	114
Coolant Reservoir Aids Drilling .....	Mar.	122
The Not-So-Fine Art Of Precision Grinding .....	Apr.	78
Magnetic Coolant Cleaner Increases Cutter Life .....	Apr.	104
Cutting Solution Increases Drill Life .....	Aug.	84

### DEBURRING

99 Percent Efficiency With Tube House Dust Collector .....	Feb.	103
------------------------------------------------------------	------	-----

### DRAWING & FORMING

Push It... Don't Cut It .....	Jan.	61
"Revolutionary" Wire Drawing Dies .....	Feb.	110

### DRILLING

NC Places Mold Maker In Better Market Position .....	Jan.	74
Keys To Better Deep-Hole Drilling - Pt. 1 of a 2 Pt. Series .....	Jan.	78
Keys To Better Deep-Hole Drilling - Pt. 2 of a 2 Pt. Series .....	Feb.	94
NC "Imitation" Pays Off .....	Mar.	117
Coolant Reservoir Aids Drilling .....	Mar.	122
Hard Work For NC Pays Off .....	Apr.	94
An Old Idea Whose Time Has Returned .....	May	125
Group Technology Is Three-Way Winner .....	July	54
How To Sharpen 0.001-Inch Drills .....	July	62
Screw Machine Efficiency Plus Operator Know-How Triples Production .....	Aug.	82
Cutting Solution Increases Drill Life .....	Aug.	84
Solutions To Screw-Machine Problems .....	Sept.	87
How Much From Special Drill Shapes? .....	Oct.	100
Drills Reduce Drilling Time 35 Percent .....	Oct.	115
NC Machining Center Saves Time And Money .....	Nov.	114
Adjustable Punch Repeats Chordal Spacing .....	Nov.	122
Abrasive Belts Deburr And Finish Precision Telephone Stampings .....	Dec.	90
New Low-Cost NC Drilling Machines .....	Dec.	98

### DUST, MIST & NOISE CONTROL

99 Percent Efficiency With Tube House Dust Collector .....	Feb.	103
Eliminating Machining-Generated Smoke .....	Sept.	114
Air Pollutant Removal Necessary For Quality Control .....	Nov.	117

### ELECTRICAL DISCHARGE MACHINING

The Three Faces Of EDM .....	Feb.	66
Optical Form-Grinding EDM Electrodes .....	May	85
Peening Improves EDM'd Surface .....	May	123
An NC Machine Is Not For Tape Checking .....	Aug.	50

### ELECTROCHEMICAL MACHINING

British Go Small With ECM .....	Feb.	76
---------------------------------	------	----

### EQUIPMENT DESIGN

Magnetic Coolant Cleaner Increases Cutter Life .....	Apr.	104
New Quick-Change Hole Saw .....	May	124
An Old Idea Whose Time Has Returned .....	May	125
The Limit Of Accuracy .....	June	84
High Speed Electric Spindles Used For Grinding Carbide Cutting Tools .....	July	81
Layout "Machine" Speeds Fixture Building .....	July	84
Rolling Storage Saves Floor Space .....	Sept.	110
Remote-Control Cam Jack .....	Sept.	112

### EQUIPMENT MAINTENANCE

Die Handler Aids Construction And Service Of Molds And Die Cast Dies .....	Jan.	84
Tubing Helps Establish Relative Heights .....	Mar.	121
Air-Assist Eases Task Of Straightening Weldments .....	Oct.	117
Full NC Capability At Substantial Savings .....	Oct.	120
Fixture Improves Cross-Cutting With Circular Hand Saw .....	Nov.	123

### GAGING

Spring-Steel Strip Preserves Indicator Point .....	May	121
----------------------------------------------------	-----	-----

### GRINDING, HONING, LAPPING

99 Percent Efficiency With Tube House Dust Collector .....	Feb.	103
High Speed Electric Spindles For Grinding Transmission Parts .....	Mar.	112
The Not-So-Fine Art Of Precision Grinding .....	Apr.	78
Sabre Belt Grinders Cut Costs .....	Apr.	108
Optical Form-Grinding EDM Electrodes .....	May	85
Spring-Steel Strip Preserves Indicator Point .....	May	121
New Grinding Wheel Reduces Abrasive Costs .....	June	124
Group Technology Is Three-Way Winner .....	July	54
How To Sharpen 0.001-Inch Drills .....	July	62
High Speed Electric Spindles Used For Grinding Carbide Cutting Tools .....	July	81
Polycrystalline Diamonds Solve Chipping Problem When Dressing Wheels .....	Sept.	119
How Much From Special Drill Shapes? .....	Oct.	100
Four-Head Disc Grinder Increases Grinding Speed .....	Nov.	118

### HEAT TREATING & CHILLING

What You Should Know About Hot Hardness .....	Jan.	54
Take Advantage Of The Pretreated Steels .....	May	100
Mold Steel Meets Rugged Requirements .....	May	114
Successful Heat Treating Of Screw-Machined Parts .....	Sept.	92

### HIGH SPEED STEEL TOOLING

What You Should Know About Hot Hardness .....	Jan.	54
Cutting Solution Meets Space Age Machining Demands .....	Feb.	100
Complete Systems Tooling For Productivity .....	Apr.	88

### INSPECTION & QUALITY CONTROL

Low-Temperature Cleaners Cut Fuel Costs .....	Mar.	114
The Limit Of Accuracy .....	June	84
NC Inspection Keeps Pace With NC Machining .....	June	96
Are You Gambling With Your Quality? .....	June	102
The Hardest Part Of Any Job -- Completing It .....	Dec.	67

## INVENTORY CONTROL

Safe Handling Of Parts And Materials .....	Nov.	96
--------------------------------------------	------	----

## JIGS & FIXTURES

Short-Run Broaching Is Job Shop's Winner .....	Mar.	90
Complete Systems Tooling For Productivity .....	Apr.	88
Threaded-Body Rams Are Key Components In Hydraulic Collet .....	July	78
Layout "Machine" Speeds Fixture Building .....	July	84
Abrasive Belts Polish Off Cast-Iron Machining Headache .....	Aug.	80
Remote-Control Cam Jack .....	Sept.	112
Adjustable Punch Repeats Chordal Spacing .....	Nov.	122
Fixture Improves Cross-Cutting With Circular Hand Saw .....	Nov.	123

## MATERIAL HANDLING

Dividing Rack Eliminates Manual Material Handling .....	Feb.	106
Pallet Puller Speeds Work .....	Mar.	120
Rolling Storage Saves Floor Space .....	Sept.	110
Safe Handling Of Parts And Materials .....	Nov.	96
Magnets Aid Hitcher .....	Nov.	125

## MATERIALS

Material Selection Is Key To Profitable Productivity .....	May	92
Shaped Bars And Rods Key To Production Savings .....	May	119
The Limit Of Accuracy .....	June	84
Material Utilization Calculations Without Part Weight .....	July	86
Convert Those Screw-Machine Quotes To Orders .....	Sept.	82
Polycrystalline Diamond Sets Sparkling Machining Performance .....	Oct.	84
Stainless Steel Shafts Support Giant Butterfly Valves .....	Oct.	112

## METAL CUTOFF

Six Basic Rules For Reducing Abrasive Cutoff Costs .....	Mar.	98
Switch Relocation Saves Material .....	Apr.	112
One-Man Front-And-Back Shearing .....	July	66
Solutions To Screw-Machine Problems .....	Sept.	87

## METALLURGY

What You Should Know About Hot Hardness .....	Jan.	54
Take Advantage Of The Pretreated Steels .....	May	100
Mold Steel Meets Rugged Requirements .....	May	114
Successful Heat Treating Of Screw-Machined Parts .....	Sept.	92
Stainless Steel Shafts Support Giant Butterfly Valves .....	Oct.	112

## MILLING

NC Places Mold Maker In Better Market Position .....	Jan.	74
Cutting Solution Meets Space Age Machining Demands .....	Feb.	100
NC "Imitation" Pays Off .....	Mar.	117
Magnetic Coolant Cleaner Increases Cutter Life .....	Apr.	104
Engineered Tooling Solves Machining Problem .....	June	122
An NC Machine Is Not For Tape Checking .....	Aug.	50
Constant Acceleration With Circular Interpolation .....	Aug.	56
Polycrystalline Diamond Sets Sparkling Machining Performance .....	Oct.	84
Contour Milling To Boring Accuracy With Horizontal-Spindle Milling Machine .....	Oct.	121
NC Machining Center Saves Time And Money .....	Nov.	114
Profile Millers Play Key Role In Contract Machining Work .....	Dec.	92



## NC MACHINES & CONTROLS

NC Places Mold Maker In Better Market Position .....	Jan.	74
Power Chucking Grips NC Turning Profits .....	Feb.	84
How To Utilize An NC Consultant .....	Mar.	106
NC "Imitation" Pays Off .....	Mar.	117
Complete Systems Tooling For Productivity .....	Apr.	88
Hard Work For NC Pays Off .....	Apr.	94
NC Tube Bender Assures Higher Output .....	Apr.	107
CAD/CAM: Where Do We Stand? .....	May	104
NC Inspection Keeps Pace With NC Machining .....	June	96
Users Learn 3R's Of NC Bending .....	July	72
An NC Machine Is Not For Tape Checking .....	Aug.	50
Contract Shop Wins With NC .....	Aug.	62
NC Breaks Casting Hammerlock .....	Aug.	67
NC Users: What Do They Say? .....	Aug.	72
Can Big NC Serve The Small Job Shop? .....	Sept.	100
Holding Without Distortion For NC .....	Oct.	97
Full NC Capability At Substantial Savings .....	Oct.	120
Contour Milling To Boring Accuracy With Horizontal-Spindle Milling Machine .....	Oct.	121
Computerized Production Control Eases Work Flow Scheduling .....	Oct.	125
The Exception To Presetting .....	Nov.	92
Small Shop - Big NC .....	Nov.	108
NC Machining Center Saves Time And Money .....	Nov.	114
Low-Cost Machining Center With Extended Capabilities .....	Nov.	130
Job Shop Puts Work Of Eight Machines On One NC .....	Dec.	62
New Low-Cost NC Drilling Machines .....	Dec.	98

## NC PROGRAMMING

How To Utilize An NC Consultant .....	Mar.	106
Hard Work For NC Pays Off .....	Apr.	94
Turning 90-Degree Slopes With NC .....	Apr.	110
An NC Machine Is Not For Tape Checking .....	Aug.	50
Constant Acceleration With Circular Interpolation .....	Aug.	56
Contract Shop Wins With NC .....	Aug.	62
NC Breaks Casting Hammerlock .....	Aug.	67
NC Users: What Do They Say? .....	Aug.	72
Can Big NC Serve The Small Job Shop? .....	Sept.	100
Small Shop - Big NC .....	Nov.	108
Manufacturing Computer Package Requires No Programmer .....	Nov.	127

## PEENING

Peening Improves EDM'd Surface .....	May	123
--------------------------------------	-----	-----

## PLANT LAYOUT

Group Technology Is Three-Way Winner .....	July	54
Rolling Storage Saves Floor Space .....	Sept.	110
Book-Shelf Brackets Find Shop Use .....	Sept.	111
Basic Principles Of Good Riveting .....	Dec.	72

## PLANT MANAGEMENT

How To Institute An Eye Safety Program .....	Jan.	68
What About Inflation? .....	Mar.	102

## PLANT MANAGEMENT (CONT'D)

How To Utilize An NC Consultant .....	Mar.	106
Complete Systems Tooling For Productivity .....	Apr.	88
Hard Work For NC Pays Off .....	Apr.	94
Helpful Hints For Solving Some Financial Problems .....	May	110
The Limit Of Accuracy .....	June	84
Group Technology Is Three-Way Winner .....	July	54
Contract Shop Wins With NC .....	Aug.	62
NC Users: What Do They Say? .....	Aug.	72
Book-Shelf Brackets Find Shop Use .....	Sept.	111
In-House Blackening Without Heat .....	Oct.	92
Computerized Production Control Eases Work Flow Scheduling .....	Oct.	125
Finding Your Best Machining Conditions - Pt. 1 of a 3 Pt. Series .....	Nov.	82
Safe Handling Of Parts And Materials .....	Nov.	96
Productivity: Its Promise And Problems .....	Nov.	100
The Hardest Part Of Any Job -- Completing It .....	Dec.	67
Finding Your Best Machining Conditions - Pt. 2 of a 3 Pt. Series .....	Dec.	82

## PRESSWORKING

Die Handler Aids Construction And Service Of Molds And Die Cast Dies .....	Jan.	84
Hydraulic Press Ideal For Crimping Operation .....	Jan.	88
Hydraulic Presses Help "Seal In" Quality On Ball Bearing Assemblies .....	May	116
Thread Rolling On A Punch Press .....	June	113
One-Man Front-And-Back Shearing .....	July	66
NC Breaks Casting Hammerlock .....	Aug.	67
If You Can't Push ... Pull! .....	Oct.	116
Pacific Press Brake Helps Keep Mississippi Barge Traffic Afloat .....	Oct.	127
Grotnes-Thermatool Rim Blank Preparation System .....	Nov.	128
Abrasive Belts Deburr And Finish Precision Telephone Stampings .....	Dec.	90
High Speed Precision Parts Production .....	Dec.	94

## RESEARCH

In-House Blackening Without Heat .....	Oct.	92
How Much From Special Drill Shapes? .....	Oct.	100
Finding Your Best Machining Conditions - Pt. 1 of a 3 Pt. Series .....	Nov.	82
Finding Your Best Machining Conditions - Pt. 2 of a 3 Pt. Series .....	Dec.	82

## SAFETY

How To Institute An Eye Safety Program .....	Jan.	68
Power Chucking Grips NC Turning Profits .....	Feb.	84
Safety Stripes Save Time .....	Oct.	118
Safe Handling Of Parts And Materials .....	Nov.	96
Air Pollutant Removal Necessary For Quality Control .....	Nov.	117
Basic Principles Of Good Riveting .....	Dec.	72

## SCRAP HANDLING

Magnetic Coolant Cleaner Increases Cutter Life .....	Apr.	104
------------------------------------------------------	------	-----

## SCREW & AUTOMATIC MACHINING

Broaching Performed During NC Turret Lathe's Automatic Cycle .....	Jan.	86
Broach Holder And Stripper Pad .....	Apr.	111
Material Selection Is Key To Profitable Productivity .....	May	92

### SCREW & AUTOMATIC MACHINING (CONT'D)

Screw Machine Efficiency Plus Operator Know-How Triples Production .....	Aug.	82
Convert Those Screw-Machine Quotes To Orders .....	Sept.	82
Solutions To Screw-Machine Problems .....	Sept.	87
Successful Heat Treating Of Screw-Machined Parts .....	Sept.	92
Gripping Attachment Increases Production 100 Percent .....	Sept.	104
Air Pollutant Removal Necessary For Quality Control .....	Nov.	117

### STAMPING, BLANKING & BENDING

Heat Bends Heavy Bars .....	Feb.	107
NC Tube Bender Assures Higher Output .....	Apr.	107
Users Learn 3R's Of NC Bending .....	July	72

### TAPPING & THREADING

Complete Systems Tooling For Productivity .....	Apr.	88
Torque Tests Develop Helpful Cold Form Tapping Data .....	Apr.	137
An Old Idea Whose Time Has Returned .....	May	125
Thread Rolling On A Punch Press .....	June	113
Contract Shop Wins With NC .....	Aug.	62
Solutions To Screw-Machine Problems .....	Sept.	87
NC Machining Center Saves Time And Money .....	Nov.	114
Tapping Machine Triples Production .....	Dec.	96
New Low-Cost NC Drilling Machines .....	Dec.	98

### TOOL & DIE DESIGN

What You Should Know About Hot Hardness .....	Jan.	54
Push It ... Don't Cut It .....	Jan.	61
NC Places Mold Maker In Better Market Position .....	Jan.	74
The Three Faces Of EDM .....	Feb.	66
"Revolutionary" Wire Drawing Dies .....	Feb.	110
Short-Run Broaching Is Job Shop's Winner .....	Mar.	90
Optical Form-Grinding EDM Electrodes .....	May	85
Mold Steel Meets Rugged Requirements .....	May	114

### TRACING

Tracer To "Automate" Lathes .....	May	122
Profile Millers Play Key Role In Contract Machining Work .....	Dec.	92

### TRAINING

Material Utilization Calculations Without Part Weight .....	July	86
Constant Acceleration With Circular Interpolation .....	Aug.	56
Screw Machine Efficiency Plus Operator Know-How Triples Production .....	Aug.	82
The Hardest Part Of Any Job -- Completing It .....	Dec.	67

### TURNING

Broaching Performed During NC Turret Lathe's Automatic Cycle .....	Jan.	86
Power Chucking Grips NC Turning Profits .....	Feb.	84
KC75 Inserts Used For 22 Cubic Inches-Per-Minute Removal .....	Feb.	102
The New ANSI Standard - Precision Holders For Indexable Inserts .....	Mar.	83
Hard Work For NC Pays Off .....	Apr.	94
Turning 90-Degree Slopes With NC .....	Apr.	110
Indicator Aid For Lathe .....	May	120

TURNING (CONT'D)

Tracer To "Automate" Lathes .....	May	122
The Limit Of Accuracy .....	June	84
New Geometry On Carbide Inserts For Greater Productivity .....	June	124
Group Technology Is Three-Way Winner .....	July	54
Can Big NC Serve The Small Job Shop? .....	Sept.	100
Polycrystalline Diamond Sets Sparkling Machining Performance .....	Oct.	84
How To Get Uniform Chip Control .....	Oct.	106
Join Them With Inertia Welding .....	Dec.	56
Job Shop Puts Work Of Eight Machines On One NC .....	Dec.	62

WELDING

Automatic Welding Line For Econoline .....	Apr.	136
Micro-Wire Welding Expedites Manufacture Of Mobile Lifts .....	June	120
Standardizing Welding Procedures Ups Production .....	Sept.	117
Air-Assist Eases Task Of Straightening Weldments .....	Oct.	117
Join Them With Inertia Welding .....	Dec.	56



